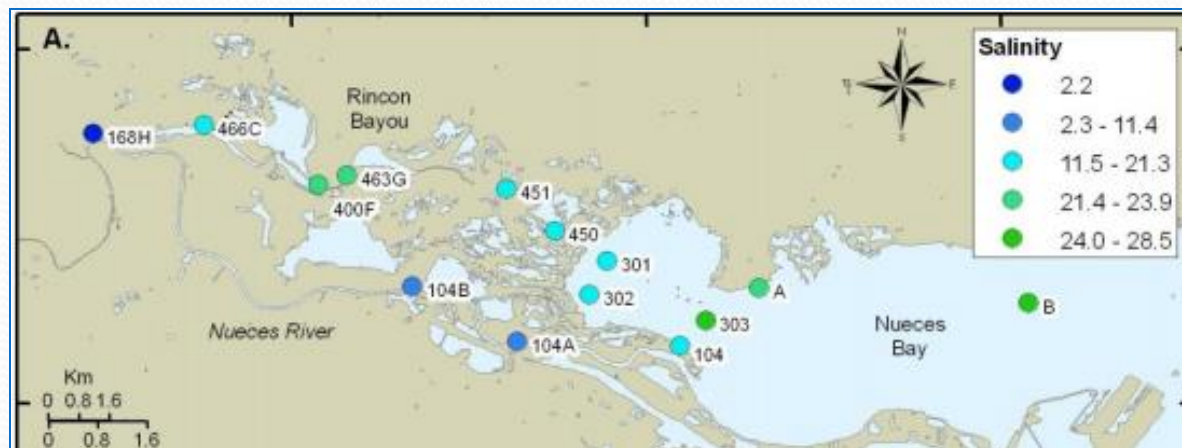


Nueces River and Corpus Christi and Baffin Bays Basin and Bay Area Stakeholder Committee (Nueces BBASC) *Work Plan for Adaptive Management (2012)*

Priority #7. Explore landform modifications to Nueces Bay and Nueces Delta

Linkages: This study is linked to the Priority #6 study for improving salinity modeling methods for determining environmental flow regimes. Enhancing a salinity model could create a tool for predicting changes in salinity regimes and help understand the effects of creating landform modifications in the Nueces Bay and Delta.

What: Maximize benefits of available freshwater inflows from all sources and seasons and climates, from managed events such as but not limited to pumping, low volume natural or induced overbank, use of effluent, use of “banked” storage, to provide protection for or the construction of preferred habitats



Why?

“Explore Landform Modifications to Nueces Bay and Nueces Delta”

- The volume and timing of water available under the existing agreed order, and current climate conditions, are frequently limited;
- The volume of inflow under a warmed future is expected to be even less;
- A low likelihood of achieving the maintenance of desired salinity levels at Salt 3, and/or hoped for habitat restoration within the Delta under current and future climate conditions;
- Interest in: maximizing use of Pass-Thru pumping;, exploring changes in operational practices (e.g. SMART Inflow Management); and possible future reuse of effluent;
- Landform modifications are used worldwide to provide effective management for preferred fish and wildlife resources;
- Recent large and small land modifications and water control projects in Delta have shown beneficial outcomes;
- Preliminary TWDB modeling suggest potential for salinity reduction (e.g. in Upper Nueces Bay);
- Manage Sea Level Rise (SLR) impacts.

The Nueces BBASC's *Work Plan for Adaptive Management* described the approach:

- 1) Synthesize information on the historic, previous and current landform modification and water control structure proposals, and implemented projects, related to water management, mitigation, habitat construction, habitat enhancement (in Nueces Bay and Delta);
 - 2) Synthesize information concerning apparent effectiveness of implemented modifications, and/or the intended justification and benefit from non-implemented proposals;
 - 3) Conduct a design *charette* to review results of 1 and 2 and to identify additional concepts or ideas for further evaluation.
 - 4) Prepare preliminary conceptual plan and profile for projects identified in 3, conduct a preliminary estimate of cost and prepare a study report combining results for 1, 2, 3 and 4.
-
- 5) *Revisit/re-run TWDB models to verify TWDB 2000 preliminary results and, where the model is directly applicable, to evaluate projects identified in 4.*
 - 6) *Apply, where applicable, results and estimates developed under the climate change Work Plan item.*

Study Team

Years of Combined Experience Working in the Nueces Delta/Bay System

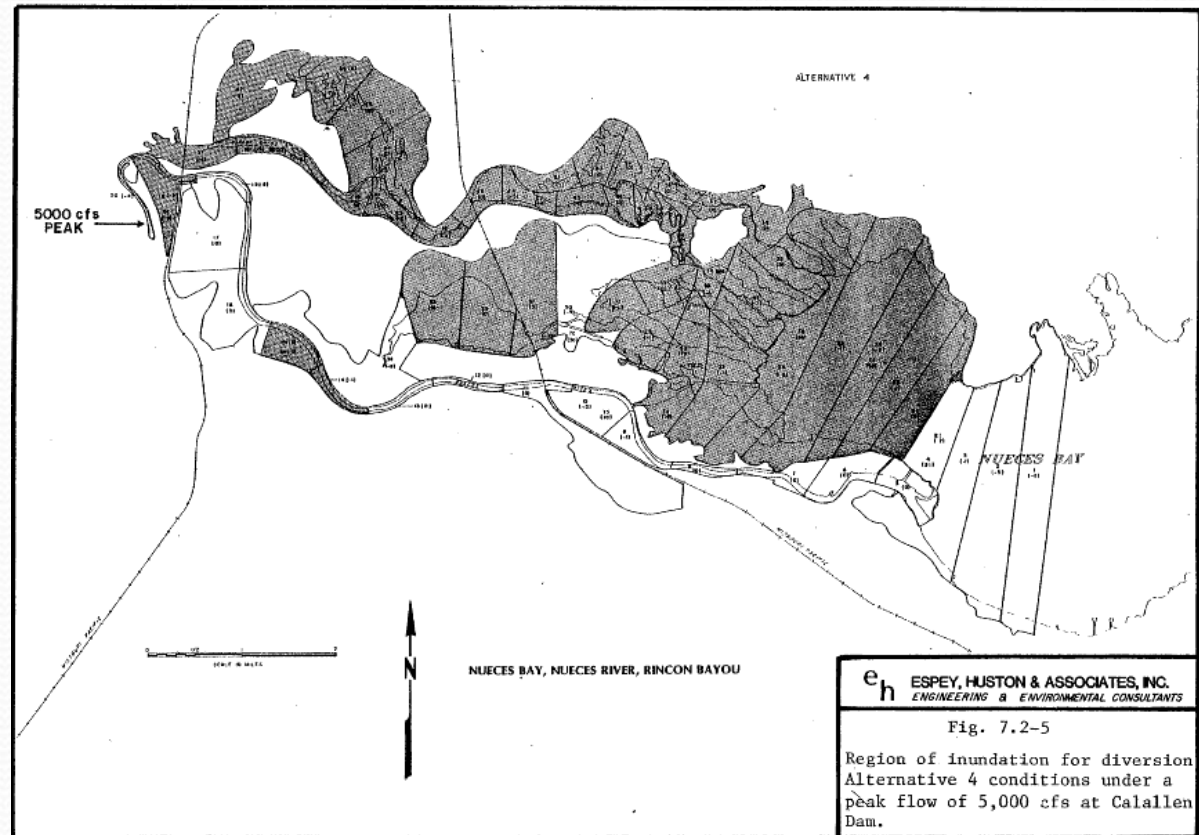
- **Naismith Engineering Inc.**
 - Grant Jackson, P.E.
 - James Dodson
 - Dave Sullivan
 - Mary Kay Skoruppa
 - Kara Thompson
- **TAMUCC Center for Coastal Studies**
 - Brien Nicolau
 - Erin Hill
- **UTMSI – Dr. Ken Dunton**
- **Dr. George Ward**
- **Dr. Ben Hodges**

The Study Area: “Nueces Delta/Nueces Bay”



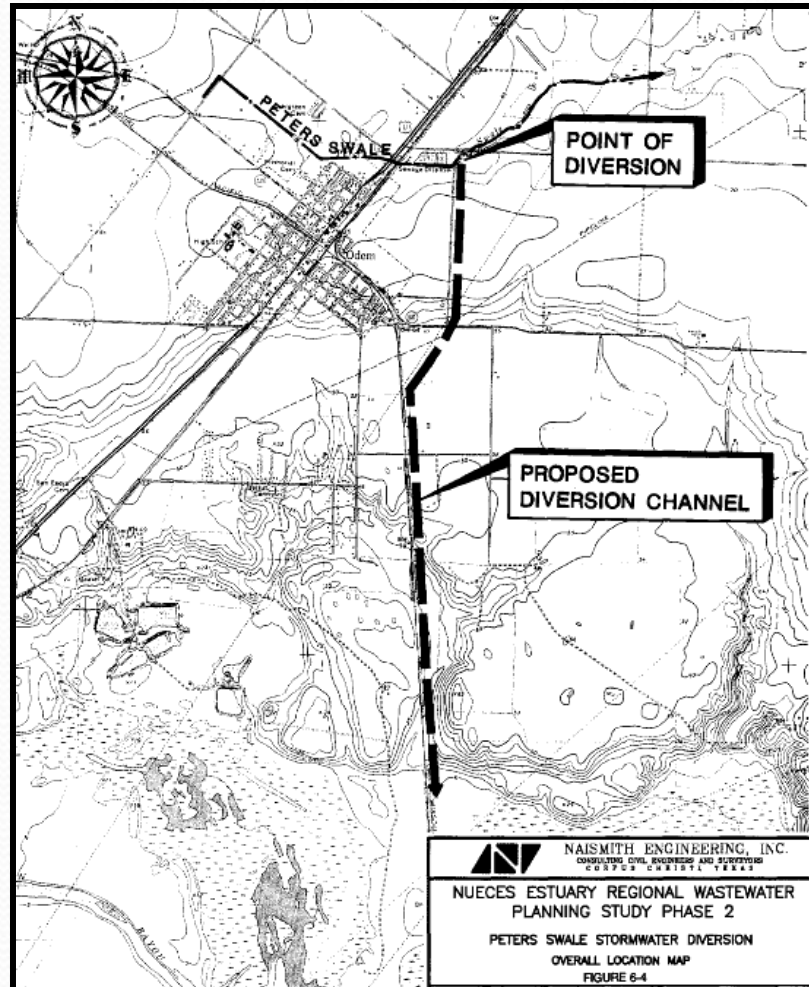
Previous Studies/Modeling of Landform/Hydraulic Modifications

USACE – Espey, Huston and Assoc. Study -- 1981



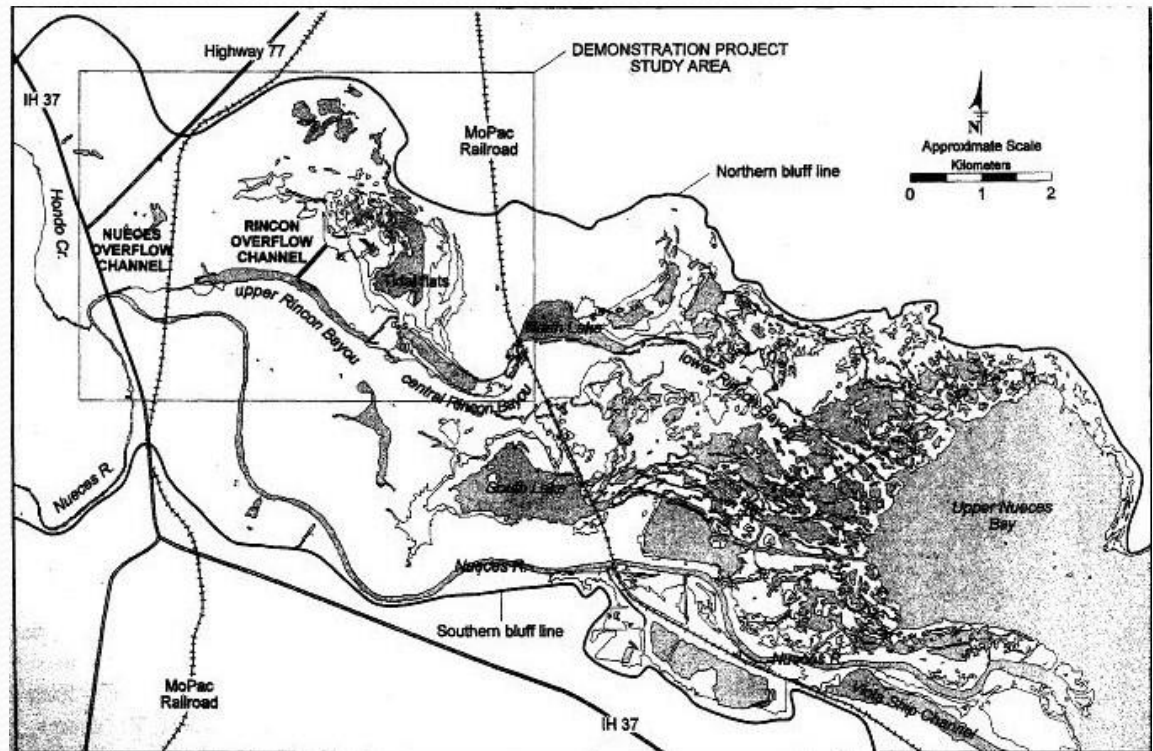
Previous Studies/Modeling of Landform/Hydraulic Modifications

Nueces Regional Wastewater Planning Study – 1993



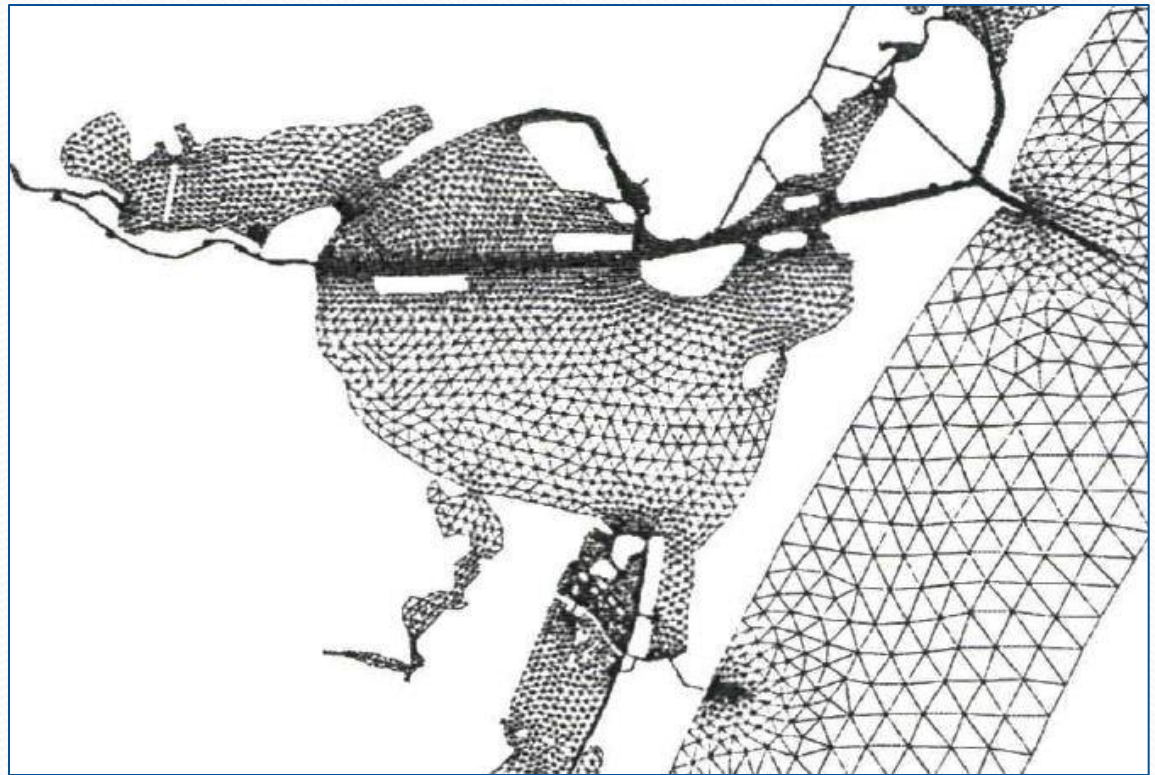
Previous Studies/Modeling of Landform/Hydraulic Modifications

U.S. Bureau of
Reclamation
Rincon Bayou
Demonstration
Project – 2000

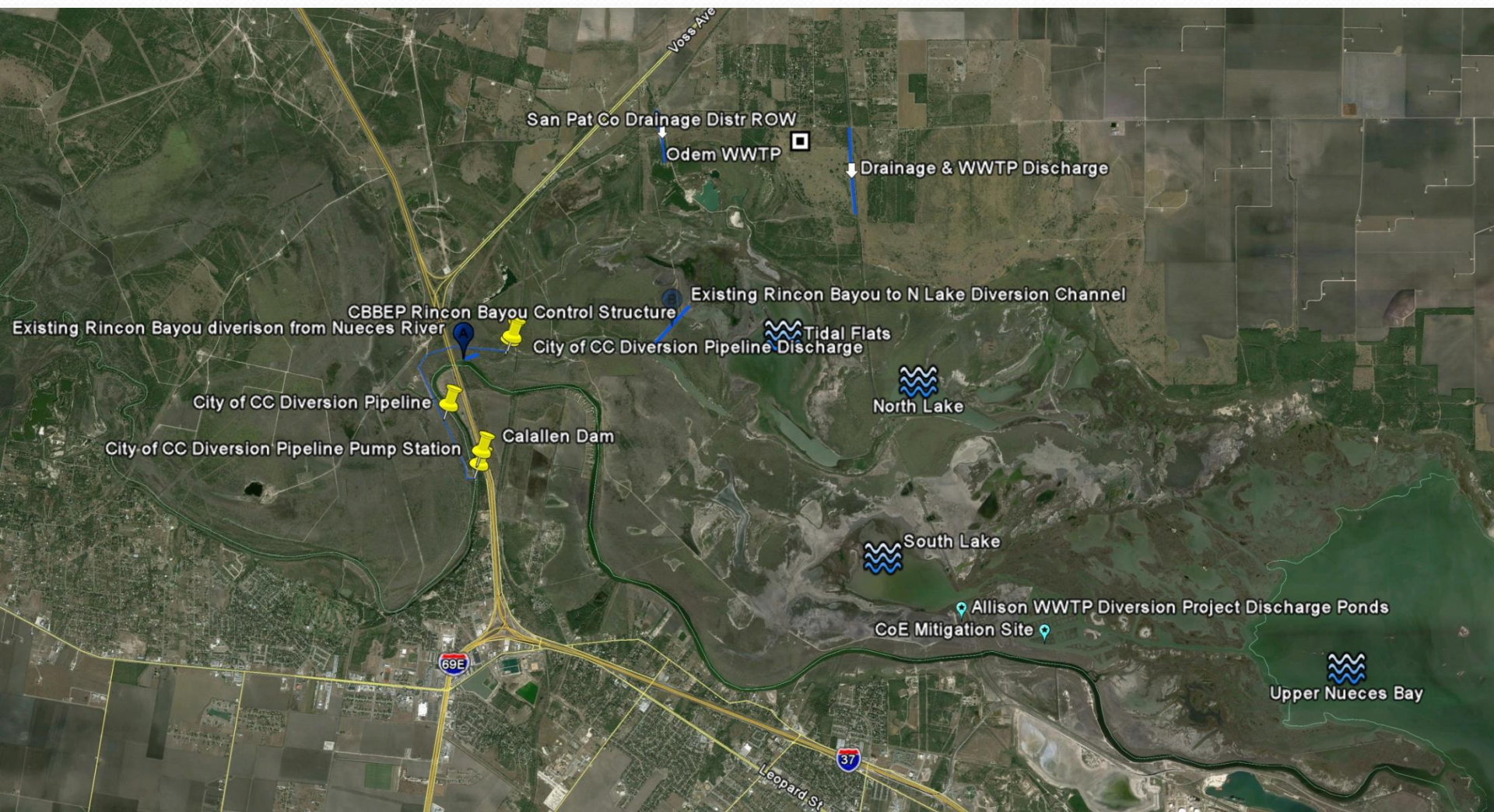


Previous Studies/Modeling of Landform/Hydraulic Modifications

**TWDB Salinity
Modeling for the
CC Ship Channel
Improvement
Project - - 2000**



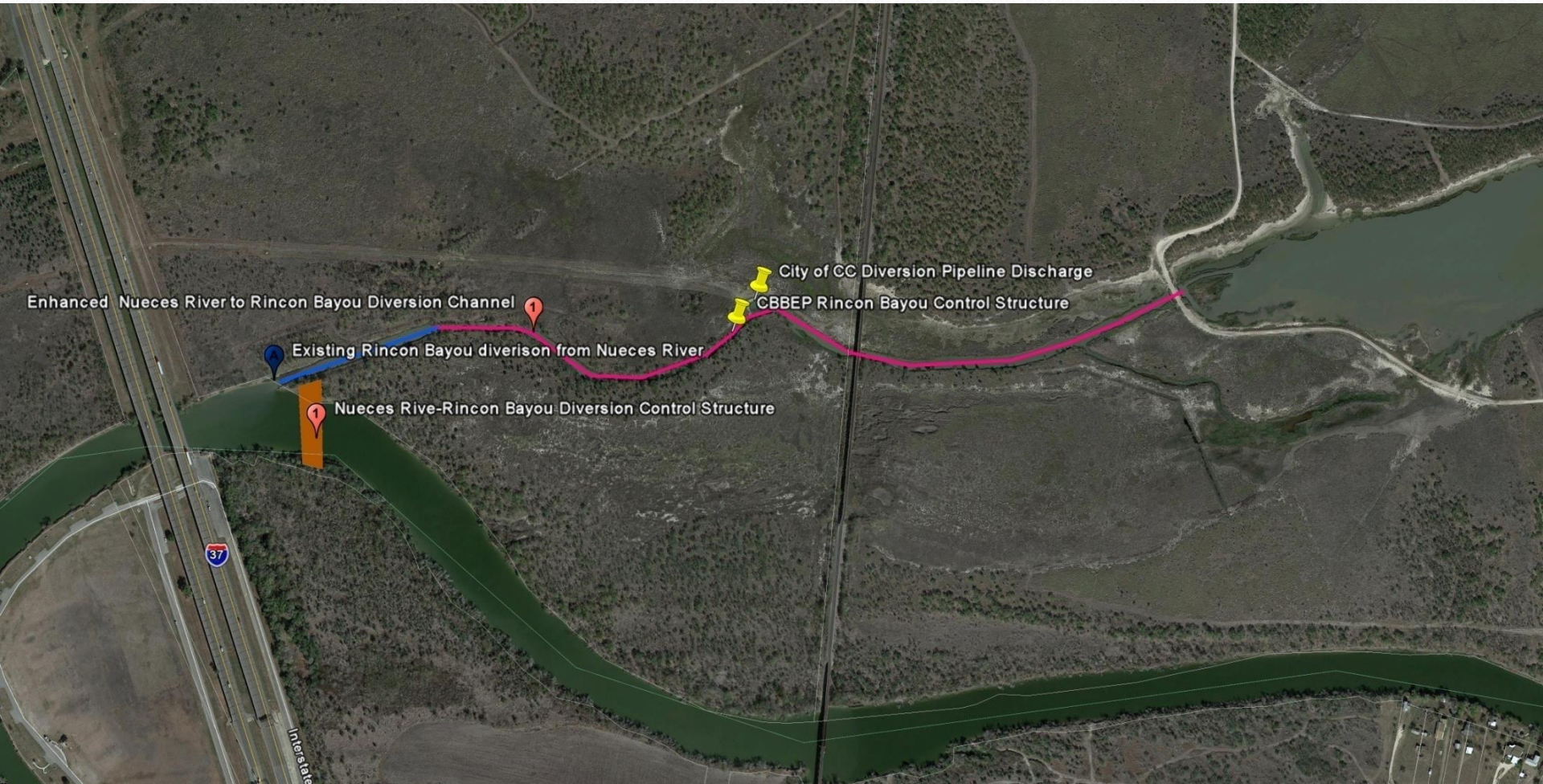
Existing Landform/Hydraulic Modifications



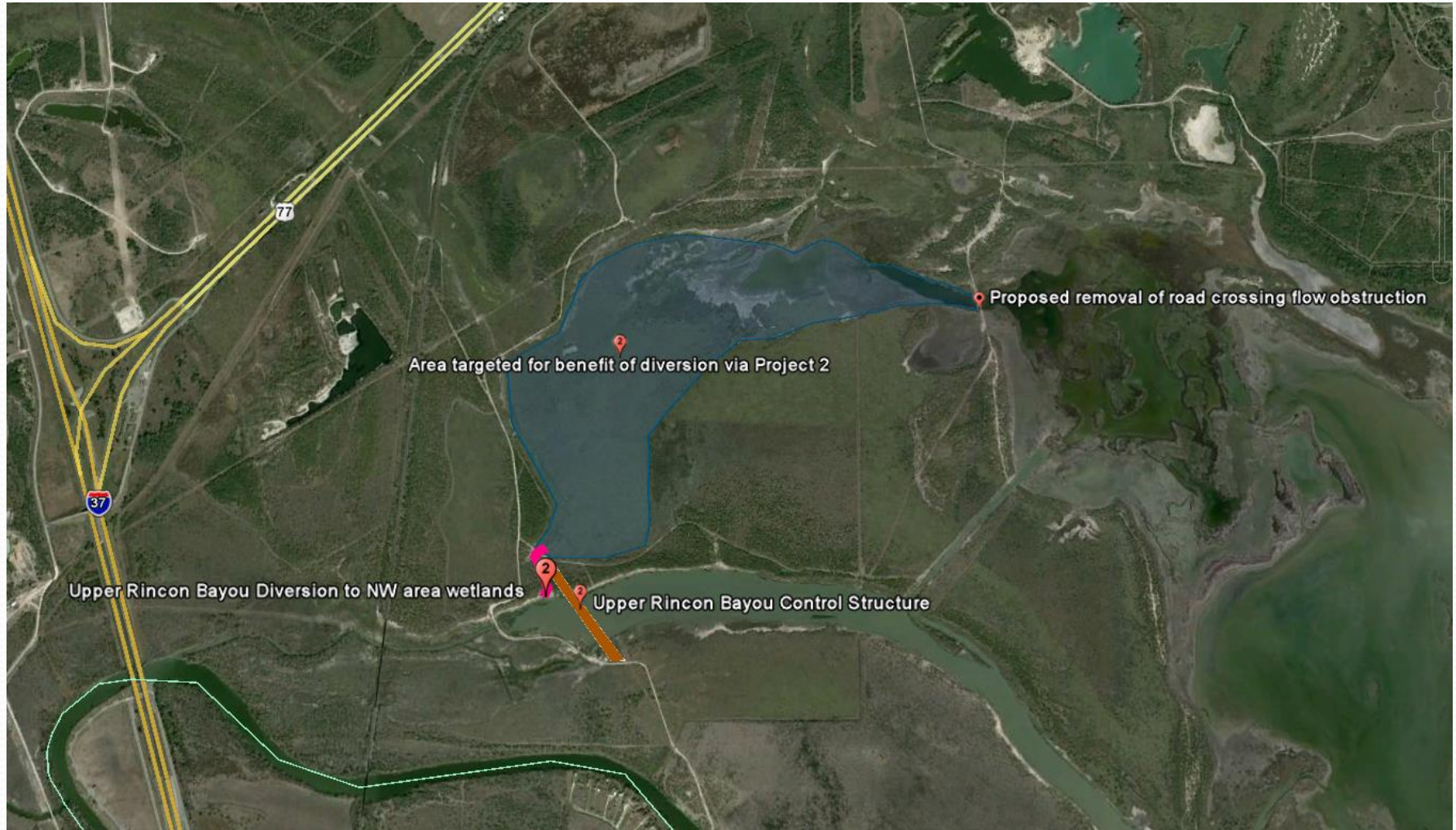
Potential Projects Being Evaluated

<u>Project #</u>	<u>Project Title</u>
1	<i>Upper Delta Nueces River to Rincon Bayou Diversion</i>
2	<i>Upper Rincon Bayou Diversion to high marsh/wetlands North of Rincon Bayou</i>
3	<i>East end of Upper Rincon Bayou control structure & diversion to South Lake area</i>
4	<i>Middle Rincon Bayou to South Lake Diversion</i>
5	<i>North Lake to South Lake system diversion</i>
6	<i>Lower Delta Nueces River Diversion</i>
7	<i>Diversion of Odem WWTP Discharge and Peters Swale Stormwater</i>
8	<i>Restoration of Allison WWTP Discharge to South Lake</i>
Others	<i>Nueces Delta Face/Nueces Bay Projects; Landform Modifications (as opposed to hydraulic modifications) to create/improve habitat (i.e., excavations)</i>

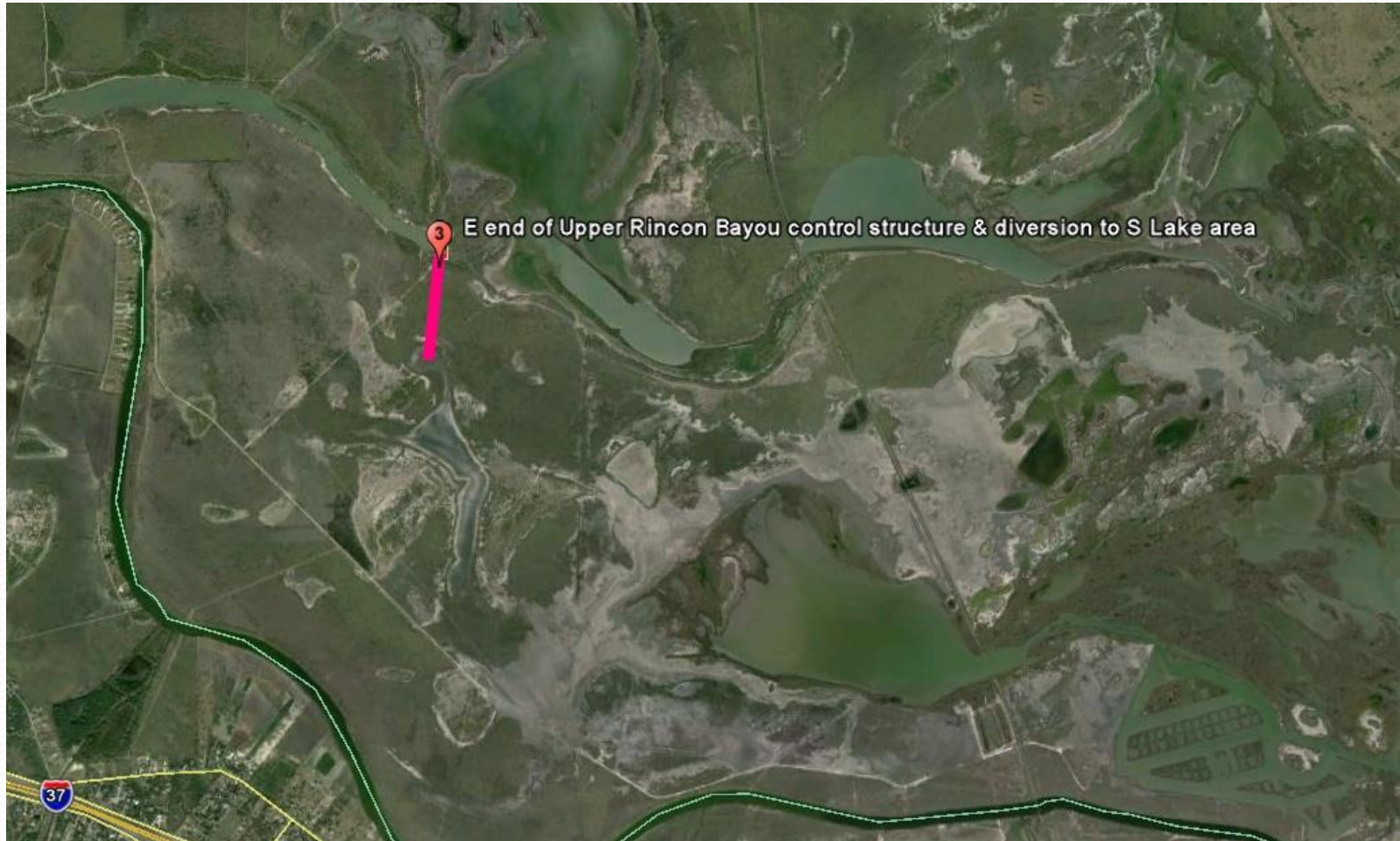
1: Upper Delta Nueces River to Rincon Bayou Diversion



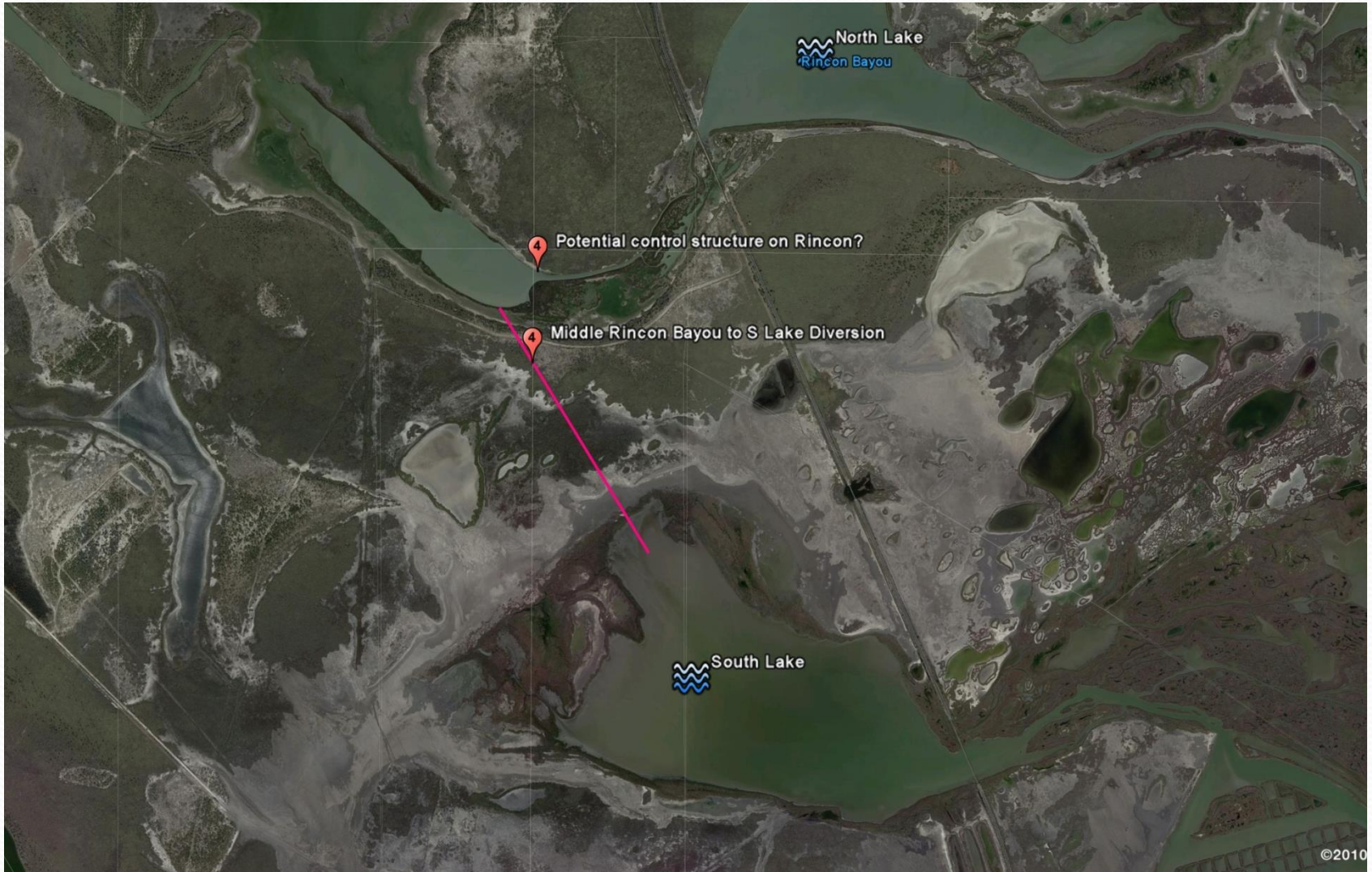
2: Upper Rincon Bayou Diversion to high marsh/wetlands North of Rincon Bayou



3: East end of Upper Rincon Bayou -- control structure & diversion to South Lake area



4: Middle Rincon Bayou to South Lake Diversion



5: North Lake to South Lake System Diversion



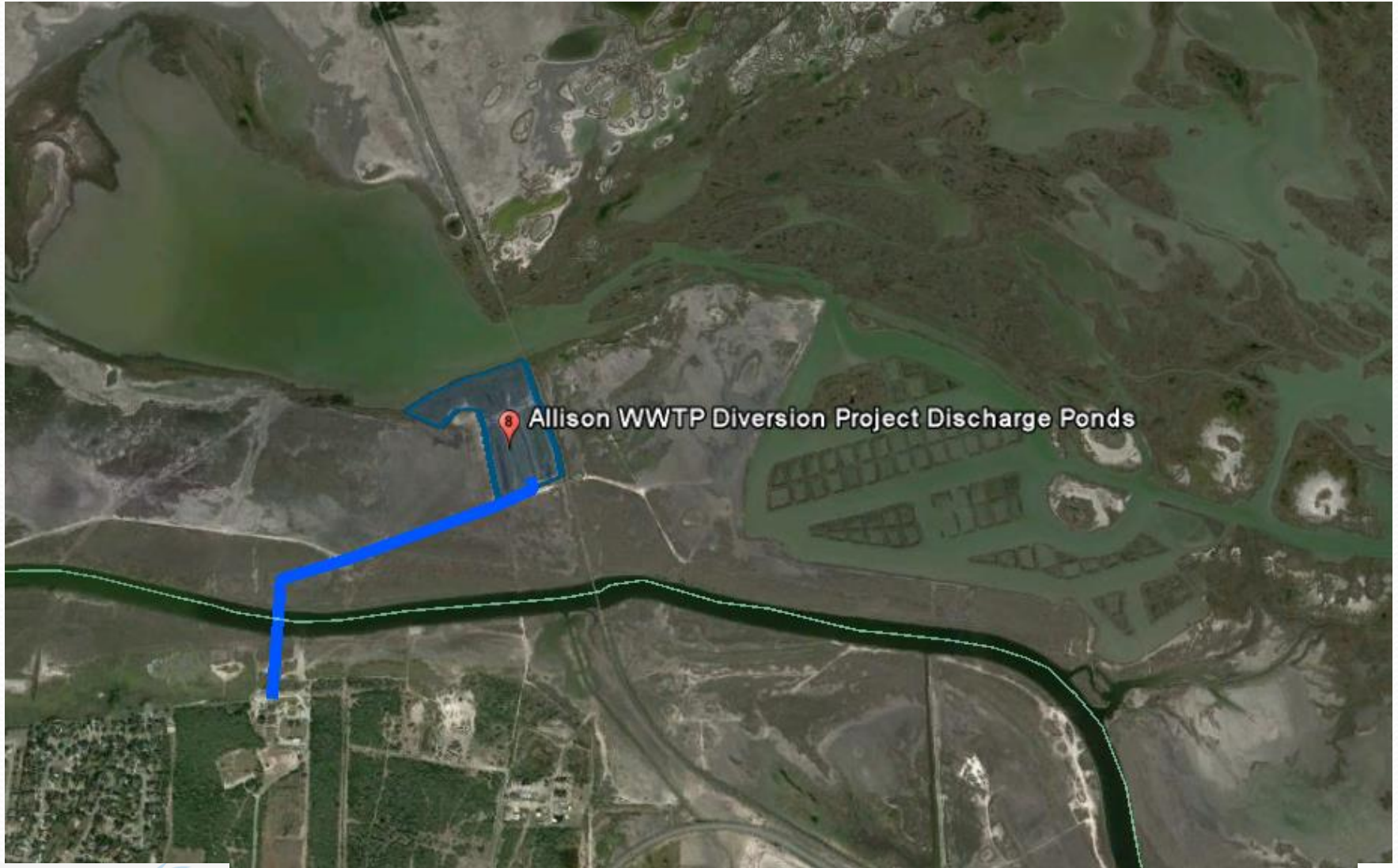
6: Lower Delta Nueces River Diversion



7: Diversion of Odem WWTP Discharge & Peters Swale Stormwater



8: Restoration of the Allison WWTP Diversion/Discharge



Others: Conceptual Nueces Delta Face/Nueces Bay Projects



Questions?

For More Information:

James Dodson

Project Manager

361-649-1518

jdodson@naismith-engineering.com